Memorandum

TO: THOMAS NOYES, DNREC

FROM: MAX CHANG AND SPENCER FIELDS, SYNAPSE

DATE: OCTOBER 30, 2017

RE: PROJECTED EMPLOYMENT IMPACTS FROM THE MARYLAND OFFSHORE WIND PROJECTS

US Wind and Skipjack included assessments of the economic impact associated with their proposed projects as required under Maryland's OREC legislation. Both applications presented forecasted employment impacts in full-time-equivalent (FTE) job years that, representing a single job created for a single year. Both applications differentiate between direct impacts—those created at the project site for contractors, construction workers and plant operators during both the construction and operation phases—and indirect plus induced impacts. Indirect impacts are the employment created in industries that support the construction and operation of the wind farms, such as supply chain impacts for turbine and component manufacturing, for instance. Induced impacts represent those created by spending on items such as restaurants, and consumer goods and services.

The two Applicants employed industry-standard economic impact input-output models to forecast the job creation from the levels of investment associated with the two proposed projects. According to their applications, US Wind expects to create over two thousand FTE job-years during construction, and four-and-a-half thousand FTE job-years during the operation of the facility. Skipjack's proposal forecasts about fifteen-hundred construction jobs plus over a thousand during plant operations.[1] Importantly, given that input-output economic impact models translate investment into economic impacts linearly, the more a project invests, the greater the impact. Given that the US Wind project proposes slightly more than double the capacity proposed in the Skipjack projects, the economic impacts forecasted for the two projects are consistent with what we would expect.

The Maryland Public Service Commission engaged Levitan and Associates (Levitan) to conduct an independent economic impact analysis of the two applications. In summary, Levitan forecasted slightly higher job growth during the construction phase, and slightly less growth during the operational period. For US Wind, Levitan calculated about three thousand jobs created during construction and just over four thousand during operations; for Skipjack, Levitan calculated eighteen-hundred jobs created during

[1] Table 1. Levitan and Associates, Inc. 2016. "Evaluation and Comparison of US Wind and Skipjack Proposed Offshore Wind Project Applications: REVISED Public Version." Prepared for the Maryland Public Service Commission. Revised March 17,2017.

the construction phase, and eight hundred during operations (see Table 1).[2] The key differences between the applicant forecasts and Levitan's calculations are:

- Levitan calculated the economic impact during the operation period of the US Wind facility based upon the expected O&M spending, not overall operating revenues;[3]
- Levitan estimated higher tax revenues than US Wind, leading to more overall jobs;[4]
- Levitan included an additional $25 million investment in a steel fabrication facility in Maryland when calculating development and construction jobs for Skipjack;[5]
- And the model utilized by Skipjack can calculate the economic impact of lower electricity prices during the operation of the facility, whereas Levitan's (IMPLAN) cannot.[6]

Table 1. Comparison of applicant and Levitan estimates of job creation in Maryland, full time equivalents

	US Wind		Skipjack	
	Applicant	Levitan	Applicant	Levitan
Development and Construction	(2014-2019)		(2017-2022)	
-Direct	1,039	1,298	706	913
-Indirect and Induced	1,081	1,637	762	901
Total	**2,120**	**2,935**	**1,468**	**1,815**
Operation	(2020-2039)		(2023-2042)	
-Direct	560	2,282	740	484
-Indirect and Induced	3,980	1,833	320	336
Total	**4,540**	**4,116**	**1,060**	**820**

Note: May not sum due to rounding. FTEs created occur over different time frames for both projects. For US Wind, Levitan quantified development and construction impacts occur over 2014-2019. For Skipjack, Levitan quantified development and construction impacts over 2017-2022. Operational economic impacts quantified over the twenty-year project term for both projects.

[2] Table 5. Levitan and Associates, Inc. 2016. "Evaluation and Comparison of US Wind and Skipjack Proposed Offshore Wind Project Applications: REVISED Public Version." Prepared for the Maryland Public Service Commission. Revised March 17,2017.

[3] Page 90. Levitan and Associates, Inc. 2016. "Evaluation and Comparison of US Wind and Skipjack Proposed Offshore Wind Project Applications: REVISED Public Version." Prepared for the Maryland Public Service Commission. Revised March 17,2017.

[4] Page 91. Levitan and Associates, Inc. 2016. "Evaluation and Comparison of US Wind and Skipjack Proposed Offshore Wind Project Applications: REVISED Public Version." Prepared for the Maryland Public Service Commission. Revised March 17,2017.

[5] Page 158. Levitan and Associates, Inc. 2016. "Evaluation and Comparison of US Wind and Skipjack Proposed Offshore Wind Project Applications: REVISED Public Version." Prepared for the Maryland Public Service Commission. Revised March 17,2017.

[6] Page 159. Levitan and Associates, Inc. 2016. "Evaluation and Comparison of US Wind and Skipjack Proposed Offshore Wind Project Applications: REVISED Public Version." Prepared for the Maryland Public Service Commission. Revised March 17,2017.